

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Solomon Steiner, Robert Feldstein, Huiling Lian, Christopher A. Rhodes, and Gregory S. Shen

Serial No.: Continuation of 10/211,215 Art Unit: Not Yet Assigned

Filed: November 12, 2003 Examiner: Not Yet Assigned

For: *METHOD FOR DRUG DELIVERY TO THE PULMONARY SYSTEM*

Assistant Commissioner for Patents
Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §1.56 and 37 C.F.R. §1.97, Applicants submit an Information Disclosure Statement, including five (5) pages of Form PTO-1449 and copies of sixteen (16) documents cited therein. All of the documents cited below were cited by or submitted to the Patent Office in Application Serial No. 08/441,378, filed May 15, 1995, to which the present application claims priority. Pursuant to 37 C.F.R. §1.98(d), Applicants are not enclosing copies of these publications. Copies will be provided upon request, however. Copies of the newly cited documents, which are identified with an asterisk (*), are enclosed.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) prior to a first Office Action on the merits. It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any required fees to Deposit Account No. 50-1868.

U.S.S.N.: Continuation of 10/211,215
 Filed: November 12, 2003
 INFORMATION DISCLOSURE STATEMENT

U.S. Patents

<u>Number</u>	<u>Issue Date</u>	<u>Patentee</u>	<u>Class/Subclass</u>
3,906,950	09-23-1975	Cocozza	128/266
3,921,637	11-25-1975	Bennie, et al.	128/266
4,272,398	06-09-1981	Jaffe	427/213.31
4,861,627	08-29-1989	Mathiowitz	427/213.31
5,145,684	09-08-1992	Liversidge, et al.	424/489
5,260,306	11-09-1993	Boardman, et al.	424/45
5,352,461	10-04-1994	Feldstein, et al.	424/493
*5,458,135	10-17-1995	Patton, et al.	128/200.14
5,492,112	02-20-1996	Mecikalski, et al.	128/203.15
5,577,497	11-26-1996	Mecikalski, et al.	128/203.15
5,653,961	08-05-1997	McNally, et al.	424/45
*5,658,878	08-19-1997	Bäckström, et al.	514/3
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*5,747,445	05-05-1998	Bäckström, et al.	514/4
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*5,952,008	09-14-1999	Bäckström, et al.	424/499
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Foreign Documents

<u>Number</u>	<u>Publication Date</u>	<u>Patentee</u>	<u>Country</u>
0 257 915	02-03-1988	Innovata Biomed Ltd.	EP
*2 240 337	07-31-1991	National Research Development Corporation	GB
*2-149545	02-12-1992	Taisho Pharmaceutical Co.	JP
WO 91/04011	04-04-1991	Riker Laboratories Inc.	PCT
WO 92/08509	05-29-1992	Minnesota Mining and Manufacturing Company	PCT
*WO 93/02712	02-18-1993	Danbiosyst UK Limited	PCT
WO 93/18754	09-30-1993	Pharmaceutical Discovery Corporation	PCT

Publications

BENITA, "Characterization of Drug-Loaded Poly(d,l-lactide) Microspheres," *J. Pharm. Sci.*, 73: 1721-1724 (1984).

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GUPTA, "Contemporary Approaches in Aerosolized Drug Delivery to the Lung," *J. Controlled Release*, 17(2): 127-147 (1991).

*HEYDER, "Alveolar deposition of inhaled particles in humans," *Am. Ind. Hyg. Assoc. J.* 43(11): 864-866 (1982).

KATCHALSKI, "Synthesis of Lysine Anhydride," *J. Amer. Chem. Soc.*, 68: 879-880 (1946).

*KOMADA, et al., "Intratracheal delivery of peptide and protein agents: absorption from solution and dry powder by rat lung," *J. Pharm. Sci.* 83(6): 863-867 (1994).

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MOREN, Aerosols in Medicine, (2nd ed.), Elsevier, pp. 321-350.

*OKUMURA, et al., "Intratracheal delivery of insulin. Absorption from solution and aerosol by rat lung," *Int. J. Pharmaceuticals* 88: 63-73 (1992).

*PATTON & PLATZ, "Routes of Delivery: Case Studies. Pulmonary delivery of peptides and proteins for systemic action," *Adv. Drug. Del. Rev.* 8: 179-196 (1992).

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SALIB, "Utilization of Sodium Alginate in Drug Microencapsulation," *Pharazeutische Industrie*, 40(11a): 1230-1234 (1978).

SAWHNEY, "Bioerodible Hydrogels Based on Photopolymerized Poly(ethylene glycol)-co-poly(a-hydroxy acid) Diacrylate Macromers," *Macromolecules*, 26: 581-587 (1993).

*WIGLEY, et al., "Insulin across respiratory mucosae by aerosol delivery," *Diabetes* 20(8): 552-556 (1971).

WITCHERT, "Low Molecular Weight PLA: A Suitable Polymer for Pulmonary Administered Microparticles," *J. Microencapsulation*, 10(2): 195-207 (1993).

*YOSHIDA, et al., "Absorption of insulin delivered to rabbit trachea using aerosol dosage form," *J. Pharm. Sci.* 68(5): 670-671 (1979).

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Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicants invite the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,



Patrea L. Pabst
Reg. No. 31,284

Dated: November 12, 2003

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(use as many sheets as necessary)					
Sheet	1	of	5	Filing Date	November 12, 2003
				First Named Inventor	Solomon Steiner
				Group Art Unit	
				Examiner Name	
				Attorney Docket Number	PDT 103 CON (3)

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	US Patent Document		Name of Patentee or Applicant of Cited Document	Date of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
		3,906,950		Cocozza	09-23-1975	
		3,921,637		Bennie, et al.	11-25-1975	
		4,272,398		Jaffe	06-09-1981	
		4,861,627		Mathiowitz	08-29-1989	
		5,145,684		Liversidge, et al.	09-08-1992	
		5,260,306		Boardman, et al.	11-09-1993	
		5,352,461		Feldstein, et al.	10-04-1994	
		5,458,135		Patton, et al.	10-17-1995	
		5,492,112		Mecikalski, et al.	02-20-1996	
		5,577,497		Mecikalski, et al.	11-26-1996	
		5,653,961		McNally, et al.	08-05-1997	
		5,658,878		Bäckström, et al.	08-19-1997	
		5,740,794		Smith, et al.	04-21-1998	
		5,747,445		Bäckström, et al.	05-05-1998	
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		Office ³	Number ⁴				
		EP	0 257 915	Innovata Biomed Ltd.	02-03-1988		
		GB	2 240 337	National Research Development Corporation	07-31-1991		
		JP	2-149545	Taisho Pharmaceutical Co.	02-12-1992		
		PCT	WO 91/04011	Riker Laboratories Inc.	04-04-1991		
		PCT	WO 92/08509	Minnesota Mining and Manufacturing Company	05-29-1992		
		PCT	WO 93/02712	Danbiosyst UK Limited	02-18-1993		

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OTHER ART -- NON PATENT LITERATURE DOCUMENTS

Examiner's Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		BENITA, "Characterization of Drug-Loaded Poly(d,L-lactide) Microspheres," <i>J. Pharm. Sci.</i> , 73: 1721-1724 (1984).	
		BENSCH, et al., "Absorption of intact protein molecules across the pulmonary air-tissue barrier," <i>Science</i> 156: 1204-1206 (1967).	
		ELLIOTT, et al., "Parenteral absorption of insulin from the lung in diabetic children," <i>Austr. Paediatr. J.</i> 23: 293-297 (1987).	
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OTHER ART -- NON PATENT LITERATURE DOCUMENTS		
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		MOREN, <i>Aerosols in Medicine</i> , (2nd ed.), Elsevier, pp. 321-350.
		OKUMURA, et al., "Intratracheal delivery of insulin. Absorption from solution and aerosol by rat lung," <i>Int. J. Pharmaceuticals</i> 88: 63-73 (1992).
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		SALIB, "Utilization of Sodium Alginate in Drug Microencapsulation," <i>Pharazeutische Industrie</i> , 40(11a): 1230-1234 (1978).
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